FLASHES AND PLUGS

"ST. PETER SPEAKING." When the telephone rings in the chaplain's office at Buckley Field, Colo., the soldier who answers it, says:

"Chaplain's office—Saint Peter speaking."

He is Pvt. Saint L. Peter of Omak, Wash., a chaplain's assistant.

• • •

APRIL 1 AT THE ZOO. The Bronx Zoo, New York City, put no telephone calls through to the zoo's switchboard April 1 except those made to authentic members of the zoo's staff.

The zoo said, "April 1 is the silliest and most troublesome day of the Bronx Zoo's whole year. April Fool's Day always brings telephone inquiries for the Messrs. Behr, Wolfe, Lyons, Fox, Fisch, Campbell, Seal and Byrd, and Miss Ellie Fant."

By way of assuring peace for its harassed operators, the zoo's telephone number was changed for April 1 only, and the number was given only to persons who could prove to a special operator that they had legitimate business with the zoo.

• • •

A BOY AND HIS GIRL. The mystery of 11 nocturnal long-distance calls to Derby, Conn., placed in December and January at School No. 1, Carlstadt, N. J., and the Lincoln High School, Hasbrouck Heights, was solved when police took into custody an 18-year-old boy.

The lad admitted that he broke into the two school buildings (so dexterously that he left no trace) on 10 occasions in order to chat freely—and without cost to himself—with his girl friend.

Uninhibited by worry about time and charges, the youth chalked up something of a record on December 27 when he made the first of his unauthorized calls from the school. The boy on that occasion conversed with the girl for 69 minutes, running up a bill of $8.75. He was charged with breaking and entering. The school authorities paid the bill.

• • •

WELL DONE! Blind Irene Kemp, 35, recently called firemen from her special Braille switchboard while flames damaged the building in which she worked in Philadelphia.

Miss Kemp's calls warned four other blind people and 100 other physically handicapped persons, all of whom reached the street in safety.

• • •

POLES FOR CHINA. A movement of 25,000,000 board feet of lumber and 10,000 telephone poles from Willamette Valley, Ore. mills to China via Portland is scheduled to get under way in the immediate future.

The movement will come by rail and truck to the dock commission's new mill at an average of 15 carloads a day and will consist largely of 6 by 8-in. timbers and 14 by 14-in. timbers.

• • •

GRAB-A-TELEPHONE! The Sheriff of Marshall County, Ind., has an idea for catching chicken thieves. He recently urged farmers to grab their telephones instead of their shotguns, as that would make it possible for officers to capture the thieves. He said that too many farmers in Indiana had been attempting to "take the law in their own hands."

TELEPHONY

The Journal of the Telephone Industry

APRIL 13, 1946

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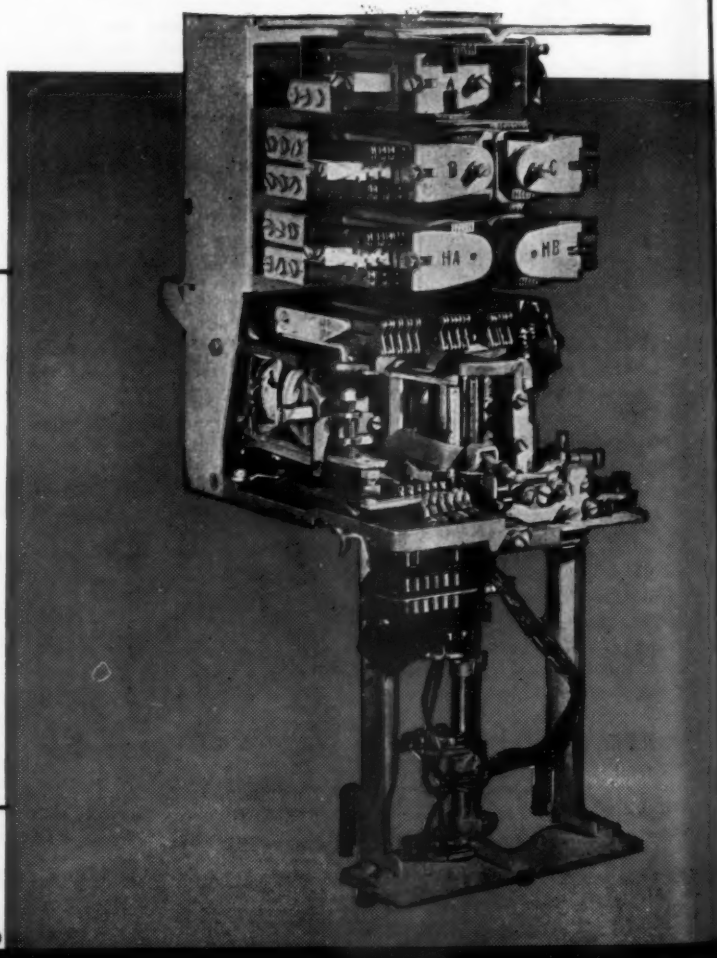
Nature has provided a wealth of raw materials but man himself must prize them from the grip of the earth, transport, process and finally fashion them into articles to be utilised by the peoples of the world. Where this activity is most concentrated and reaches its highest pitch, a great Metropolis springs up, having in addition to its own internal affairs, the function of control and co-ordination of widespread outlying areas. Efficient telecommunications are an essential need . . . but many operating problems arise; the vastness of subscriber-totals, the multiplicity of exchanges, the high calling-rate, the 'busy-hour' periods and the constant demand for long-distance and special service calls. The Strowger Automatic Telephone Director-System was specially evolved to solve these operating problems and has for many years been performing efficiently and economically in London and many other of the World's largest cities.



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CARRIER SYSTEMS

Principles of Operation

By ROBERT C. HUMMEL
Technical Advisor
West Coast Telephone Co.
Everett, Wash.

[EDITOR'S NOTE: *The author explains that this series of five articles of which this is the first, was prepared primarily for the purpose of explaining the fundamental principles of carrier operation. System designations are used only for purposes of identification of type, number of channels, frequency band, etc. The author further explains that information herein was obtained from first-hand experience on the low frequency system and from technical papers, "elbow research" and other methods of "grass roots" knowledge.*]

* * * *

PART 1: BACKGROUND

DURING the past few years we have heard much about "carrier channels" or "carrier circuits," either as telephone circuits or as telegraph circuits, and in many instances, the term "carrier" has been used in discussing these facilities. Numerous Independent telephone companies are now operating carrier systems; thus we have come to live with them as a part of our daily life. The toll plant man has had to learn a new technique and a new language.

Introducing carrier systems to our plant has not only provided additional facilities, but has also introduced a host of new problems. Thus, since the use of carrier systems is now "quite everyday" with us, a brief discussion will be timely.

When Samuel F. B. Morse laid down his paint brush to tinker with the idea of signaling by means of the electromagnetic telegraph, his thought was to harness the electric current to serve his purpose by means of letting the current flow, then stopping it. Thus by means of various combinations of short (dots) and long (dashes) circuit closures, he evolved a system of not only signaling, but of transmitting intelligence over long distances by means of wires. In this arrangement, Morse used the electric current directly to perform his signaling.

Later on, the idea of creating electrical disturbances in the air that would be transmitted without the use of wires, or conductors, as we call them, was considered as having possibilities. We will not detail the development of wireless and radio except to point out one thing—the idea of using one electrical current as a means of transmitting a second electrical current.

ROBERT C. HUMMEL

The Russian scientist Popoff develoed the coherer to study atmospheric electrical disturbances. This device consisted of a small tube having an internal diameter of say one-sixteenth inch partly filled with silver filings for say three-sixteenths inches between two silver wires that fit snugly inside the glass tube. Popoff found he could connect one end of his coherer to the earth, and the other end to a long rod projecting into the air and it would warn him of approaching electrical storms. The coherer was mounted horizontally with a battery and electric bell connected across it. When the silver filings were loose, as after shaking, the bell would not ring, but if the atmosphere became charged with static electricity or a thunder storm arose with a radius of 50 to 75 miles, the silver filings arranged themselves in chains between the silver wires, and the bell would sound the alarm. Thus, Popoff was the first man to use one electrical phenomenon to control a second.

After Hertz, the German scientist, discovered Hertzian waves—previously predicted by both Michael Farady and Maxwell about a half century earlier—the stage was all set for Marconi to perform the miracle of transmitting Morse's signals over great distances without the use of wires.

During all the early years of wireless telegraphy and the numerous attempts to develop wireless telephony—or radio as we now know it—it has always been a question as to how clearly the idea of a "carrier" for the signals was understood. In reading of these early works, there is room for speculation, for Lee DeForest, the inventor of the three-element vacuum tube, the "Audion," did not realize just what he had invented nor why it functioned as it did.

Colonel Squire, of the United States Signal Corps, was the first definitely to experiment with carrier currents on wires. That is, to use one current to carry a second current, with the second current used to transmit speech. These experiments were successfully carried on under the Potomac River between Washington, D. C., and Alexandria, Va. Thus, the whole field of "carrier" was opened.

Let us consider what is meant by a carrier current. Suppose Mr. "A" wished to go to say, Hollywood. He could normally travel by any one of the two general methods, i.e., walk or

ride. While walking is the oldest form of travel, it has fallen into disuse for any but the shortest distances. Some one of the various methods of transportation available would undoubtedly be chosen, as Mr. "A" would much prefer to ride. Thus, let us take a look at his journey.

When Mr. "A" boards a train, a bus, or an airplane, he will be using a carrier to convey him to his destination. His freedom of action will be limited to the accommodations available on the carrier while traveling on it. And so it is with the carrier systems: We must first have the vehicle, the carrier, and then superimpose on it the desired signals so the signal current may be conveyed from the point of origin to the destination.

In his experiments, Colonel Squire produced the carrier by generating a high frequency electric current with vacuum tubes and mixed with it the speech currents from an ordinary telephone instrument. These two currents were transmitted over the wire under the Potomac River and the two currents separated at the receiving end. The carrier current was absorbed, while the signal or speech currents were conducted to a second telephone and the transmitted voice was reproduced.

Mixing the signal current with the carrier current is known as "modulation," and separating the two is known as "demodulation." We shall have much use for these terms in the future. In the method used by Colonel Squire, and still very widely used throughout the world, the signal current, when modulating the carrier current, primarily increases or diminishes the quantity of the carrier current, that is, changes its amplitude. For example: When a carrier frequency of say 10 volts in amplitude (i.e., from five volts positive to five volts negative of zero) is modulated with a signal frequency of three volts amplitude, the resultant "carrier envelope" will vary from four volts minimum amplitude, when the signal voltage is opposed to the channel frequency voltage, to a maximum of 16 volts, when the two voltages are of the same polarity at the same time.

The rate of change and the shape of the carrier envelope will follow quite accurately the frequency and wave shape of the impressed signal; the more the shape of the carrier envelope resembles the wave form of the signal frequency, the more faithful will be the transmitted signal. This method of carrier operation, where the carrier is transmitted continuously and is modulated by the signal, is known as the "sustained carrier method of transmission and is used in the Type G carrier telephone system."

The more generally used system of amplitude modulation is known as the "suppressed carrier" method. In this method, no carrier current is transmitted when the signal is zero. The carrier current transmitted increases and decreases in amplitude with the frequency and strength of the signal current.

There are other methods of modulation, namely, frequency, phase shift, and pulse-time. Frequency modulation is on the threshold of adoption by the radio industry, hence its publicity, prior to the war. In this method the carrier will not be changed in amplitude by the signal current, but will be speeded up or slowed down in its rate of change, i.e., frequency. It is hoped by the use of a multiplication of about five to one in frequency sway due to modulation, to give higher fidelity and better definition to radio reception. The idea is not new. It was considered in the early days of radio—and discarded in favor of amplitude modulation. The other methods—phase displacement and pulse-time — have not yet made their appearance commercially for carrier systems. For this reason and also due to the involved technical details we will not discuss them at this time.

We made mention in our "trip to Hollywood" that Mr. "A's" freedom of action was limited by the accommodations available en route. And so it is with carrier channels. Before we can transmit a signal or speech, we must know how much definition, fidelity, timbre, etc., we wish to reproduce or transmit. For signaling—such as carrier telegraph channels—a very narrow band is sufficient. In amplitude modulation, 175 cycles is one over-all width per channel used. This covers modulator and demodulator frequency drift, and filter band width. For telephone conversations, an over-all channel width of 4,000 cycles is adequate. Of this, only about 2,800 cycles is useful. This gives a high quality speech circuit; the particular person can be identified readily, the inflections of the voice and peculiarities of speech are well transmitted.

With this band width the frequencies from 350 to 3,150 cycles are transmitted without appreciable loss. Due to the stress of war, many carrier systems have had one or more channels made into two by the use of "band splitters" —each 4,000-cycle channel is made to provide two channels of about 1,200 cycles in width. These channels are in the upper part of the frequency band used, thus, suppressing the lower tones. This has a tendency to make all voices sound much alike, however, the speech is clear and distinct.

As a contrast, the radio channels in general use are a full 4,000 cycles in width, with some channels as broad as 7,000 cycles. This explains one reason why music by radio sounds so much better than when transmitted by telephone.

Thus an over-all band width of 4,000 cycles has been adopted in this country for "voice frequency" carrier channels. (Voice frequency has been adopted to generally express any facility that will transmit the frequency band of 350 to 3,150 cycles).

(To Be Continued)

Dog Sled Brings Mother to Telephone

Tears streamed down the wrinkled cheeks of an Indian mother at Moosonee, Ontario, after a mounted policeman recently brought her to his police post by dog sled so that she could talk to her soldier son just back in Toronto from overseas.

The woman had never talked on the telephone before and couldn't understand what all the fuss was about. Finally the Mountie spoke to the soldier and then gave his message to the mother.

"Poor thing," the Mountie told the telephone operator, "the tears are streaming down her face."

The long distance call to Moosonee was arranged by the citizens' committee which provides returning servicemen with free telephone calls to their homes anywhere in Canada.

When the call was placed to Moosonee for the Indian soldier, a member of the committee was advised the man's mother had no telephone. The Moosonee telephone operator then arranged with the local mounted police to go out into the country and bring the woman in by sled.

IN THE NATION'S CAPITAL

BY
FRANCIS X. WELCH
WASHINGTON
EDITOR

Minimum Wage Bill appears to face defeat. . . . Two state governments take steps to stop strikes in utility field. . . . Supreme Court decides North American Co. holding company case.

IT LOOKS as if the Truman administration's bill to boost the national minimum wage standard to 65 cents an hour, or anything like it, is as dead as the proverbial door nail. Some sort of face-saving legislation to push up minimum rates beyond the 40-cent level, now prevailing in the Fair Labor Standards Act, still has a theoretical chance. But even that much is doubtful, from a practical standpoint, as the result of some fast foot work by the opponents of the administration's bill before the Senate passed the bill last week.

First of all, Senator Pepper, author of the 65 to 75 cent-an-hour bill was outmaneuvered, along with the New Deal bloc which was fighting for a substantial upward revision of the wage-hour measure. (This is all in the nature of a postmortem, now.) This writer is inclined to think that if Pepper had not been so hard headed, earlier in the game, he might have stood a much better chance of getting a half-loaf bill, or even a quarter-of-a-loaf bill through Congress.

But Pepper spurned compromise. He even got a little nasty to those who suggested it. When he saw that defeat of his original plan was inevitable, it was too late. A coalition between the southern Democrats and the right-wing bloc of Republican senators had crystallized. It had collected enough votes to beat Pepper's bill in its original form, and everybody knew it. Yet at one time, it is understood, Pepper's crowd was offered a 55-cent compromise without any strings attached by the conservative Southern senators. But it was turned down.

What happened last week makes it very doubtful if there will be any legislation at all on the subject this year. Early in the week, Pepper and a few others decided that the 65 to 75-cent-an-hour boost over the prevailing 40-cent minimum had absolutely no chance. For the first time, they began talking about compromise. But meanwhile the farm bloc had gotten together with other opponents of the Pepper Bill on a proposition to load the bill down with a so-called farm parity amendment. This would increase the prices of farm commodities so as to return to farmers sufficient revenue to offset corresponding increase of labor costs and wage boosts generally.

The administration, knowing that the bill could hardly pass through the Senate and the House with such a load, and also fearing the inflationary effect of boosting both city wages and farm prices in the same legislation, denounced the farm parity amendment as dangerous. President Truman even promised that he would veto the bill if it ever passed containing such an amendment. This was a fairly safe promise, since the chances of the bill clearing both houses while carrying such a double burden were pretty slim.

It was about this time, that the Pepper crowd finally woke up to the facts of life. Critics of the measure, for the purpose of getting the issue out on the floor, agreed to let a flat 60-cent-an-hour compromise (as distinguished from the original 65 to 75 cents in three years contained in the committee's version of the Pepper Bill) go to a vote. Some members of the Pepper crowd still claim that part of the agreement was to throw overboard the bill's Jonah in the form of the farm parity amendment.

Whether such was the case or not, the Senate turned right around, after voting the flat 60-cent compromise, and plastered the bill with the farm parity amendment by a vote of 46 to 38. The vote cut fairly evenly across both party lines, with due regard to the relative strength of both parties in the upper chamber. It was too late for the Pepper crowd to do much else than gripe about being "double crossed." The fat was in the fire. Finally, the Senate, by a vote of 76 to 6, made the bill even more unpalatable to the House by raising the flat 60-cent minimum to 65 cents plus the onerous burden of the farm parity clause.

If the administration does try to revive the measure for further action, it will have to do so on the basis of a compromise considerably less than 65 cents an hour. A plain 50-cent increase might stand some chance in the House.

Of special interest to the telephone industry, of course, is the fact that with the Pepper Bill now passed by the Senate but, at the same time, languishing on what may be its death bed, *the possibility of increasing the exemption (from application of the Wage-Hour Act) to telephone operators at exchanges of 1,000 stations or less will likewise become a dying, if not a dead, issue.* This increased exemption (over the prevailing exemption of 500-station exchanges) would have been welcome relief to those Independent telephone companies affected. *However, this exemption feature is more than offset for the telephone industry, as a whole, by the present prospect that the 40-cent minimum wage under the prevailing Fair Labor Standards Act will not be increased this year.* Anyway the 1,000-station exemption was finally knocked out of the bill as it passed the Senate.

Whether the administration controlled House Labor Committee will take the risk of almost certain further emasculations in the lower chamber by reporting out a bill for a vote on the floor of the House prior to the summer recess of Congress is, to say the least, quite questionable. If ever that should happen, and the House, as it has twice done in the past, insists on the farm parity feature, President Truman

would be virtually committed to veto the whole business.

Since Congress has not been too enthusiastic about the legislation in the first place, it would surely not pass the bill over the President's veto, and that would be the end of the bill. But a more plausible prediction is that the administration is not going to stick its neck out for any unnecessary lumps by insisting on further action on this bill in the near future. It already has taken enough of a beating to last the rest of the year.

* * *

Well, the comfortable old-fashioned idea that employes of the government could never go out on strike is taking some pretty hard knocks these days. The attitude of the Detroit transit workers is the latest example of defiance of this pious tradition. It reminds this cynical observer of the old vaudeville tag line indignantly screamed by a comedian from his barred cell at his goofy lawyer, who had just made the trite remark: "But they can't put you in jail for this!" Public utilities of all shapes and sizes can well follow with interest what is happening to this traditional dictum, "You can't strike against the government." It may well have an important bearing on public ownership trends in the future with respect to utility property operations.

As originally announced by President Grover Cleveland years ago, the idea that government employes cannot go out on strike was confined to employment which was obviously of a government nature. Soldiers and sailors, of course, would incur the charge of mutiny. But even civil service employes, such as policemen, firemen, postal workers, and old-line government employes generally were regarded as falling under the "no strike" ban.

When Calvin Coolidge, later President, took stern action against the Boston police strike in the early twenties, his policy was accordingly vindicated and applauded. More recently Mayor LaGuardia of New York City, and above all the late President Franklin Roosevelt, thundered maledictions against any government employe who would even think about striking against our government—federal, state, or local.

That worked pretty well under the restraint of war and the patriotic atmosphere engendered. But when the New York City subway workers earlier this year threatened to go out on strike, Mayor O'Dwyer climbed down off his high horse and jumped to meet the demands of a union leader. Mayor Jeffries of Detroit was not so minded when several weeks ago the employes of the city-owned transit system decided that they were going to go out on strike. The result was a strike which at this writing was still unsettled.

The point is, the Detroit city workers *did* strike. The city is trying to negotiate with them in order to settle the strike. Which brings us right back to the proposition that when a government agency—whether it is the city, the state, or even the federal government—goes poking its nose into a line of commercial enterprise such as a public utility business, it has got to expect to give (and take) the same sort of treatment as private enterprise engaged in the same line of business.

We should not forget this lesson from Detroit, New York City, Columbus, Ohio, the Lower Colorado River Authority (Texas), and several other places where public employes on utility properties have actually walked out or threatened to do so. The next time public ownership advocates talk about government employment "stabilizing" public service by removing the threat of strikes, we can say, "Tell that to the people of Detroit."

On the other hand, and perhaps more important, the next time public ownership advocates try to peddle their medicine to organized labor groups, the latter should have sense enough to recall what happened to their traditional right of collective bargaining when disputes developed in these various communities.

Regardless of all that, however, there is increasing sentiment in Washington, D. C., for the development of some sort of a policy that will reduce, if not remove, the threat of public utility strikes, regardless of ownership or operation. Offhand, one would think that employes in public utility service would be far more cautious in going out on strike by very reason of the vital nature of the service they perform. One would think they would be more cautious for the simple reason that a public utility strike necessarily causes general public suffering and, therefore, is bound to incur public displeasure.

If the labor unions actually were trying to figure out a way to get the public sore at them, it is hard to imagine a better plan than to engage in a series of widespread utility strikes. That is what one would think offhand. But the fact remains that it has not been turning out that way at all. Some labor leaders apparently think that by very reason of the vital nature of public utility service, the workers engaged in such service are thereby placed in a better bargaining position to force

COMING CONVENTIONS

United States Independent Telephone Association Executives' Conference, Edgewater Beach Hotel, Chicago, April 16 and 17.

Ohio Independent Telephone Association, Deshler-Wallick Hotel, Columbus, April 23 and 24.

Indiana Telephone Association, Severin Hotel, Indianapolis, May 1 and 2.

Illinois Telephone Association, Pere Marquette Hotel, Peoria, May 8 and 9.

Wisconsin Independent Telephone Association, Park Hotel, Madison, May 14, 15 and 16.

New York State Telephone Association, Hotel Onondaga, Syracuse, May 22 and 23.

Pennsylvania Independent Telephone Association, Hotel Roosevelt, Pittsburgh, June 6 and 7.

Washington Independent Telephone Association, Spokane Hotel, Spokane, June 14 and 15.

Oregon Independent Telephone Association, Multnomah Hotel, Portland, June 21 and 22.

California Independent Telephone Association, Miramar Hotel, Santa Monica, June 27 and 28.

Michigan Independent Telephone Association, Hotel Olds, Lansing, September 18 and 19.

United States Independent Telephone Association, Stevens Hotel, Chicago, October 14, 15 and 16.

North Carolina Independent Telephone Association, Pine Needles Hotel, Southern Pines, November 11 and 12.

Alabama Independent Telephone Association, Jefferson-Davis Hotel, Montgomery, November 18 and 19.

quick capitulation to their demands, and should not hesitate to take prompt and full advantage of such position.

A comparison of utility labor disputes which have subsequently developed into strike threats, and eventually into actual strikes, is by no means reassuring when compared with the number of labor disputes settled without strike in non-utility disputes generally. It is consideration of such factors which is giving legislators (not only in Washington, D. C., but in the state capitals as well) serious concern. Two interesting experiments for dealing with this situation have emerged within the past fortnight. In New Jersey a law has been passed at the instigation of the state's Republican executive, Governor Edge, requiring all public utility labor disputes to be submitted to a period of compulsory negotiation or so-called cooling-off period. After that, if the workers continue to be unsatisfied and threaten to walk out, the New Jersey law empowers the state governor to take over and operate the utility properties in question.

Already the New Jersey law, which only has recently been signed, has been submitted to a critical test, as the result of seizure by the state of certain gas utility property as the result of the walkout.

Down in Virginia, a Democratic state executive, Governor Tuck, has come up with a different and equally interesting pattern for coping with threatened utility strikes. Readers of this department probably have already seen in their newspapers what happened when the employes of the Virginia Electric Power Co. threatened to go out on strike a couple of weeks ago. This particular utility furnishes electric service for almost the entire state, and even some areas in neighboring North Carolina and West Virginia. Any shutdown in its operations would just about paralyze business and community life throughout the Old Dominion.

Governor Tuck, acting under an old militia law (the prototype of which is likely to be found in a number of other states) issued orders to all electric utility workers telling them that they were drafted for emergency service with the state militia. They were to go "on duty" in the event a strike were actually declared. They were to stay "on duty"—subject to orders from militia officers—*by functioning in their usual places of employment*, until they were discharged from emergency duty.

Obviously, this was pretty drastic action and it created some serious legal questions. Labor union leaders in both the AFL and CIO camps immediately snapped to attention. They called it a violation of constitutional guarantees against involuntary servitude and a lot of other things not quite so polite. But whether it is admitted or not, Governor Tuck's forthright action got some results. Within an hour before the militia draft order was to go into effect, the AFL union involved in the suit submitted to arbitration and the emergency was over. Governor Tuck promptly rescinded the militia order; and thereby knocked the props from under any attempt to test the legality of his procedure in the courts.

What worries labor union leaders is that the precedent set by Governor Tuck may be followed in the future by governors in other states with similar militia laws. It is doubtful if any governor in a northern or middle western state would even attempt to get away with anything of the sort. But in the southern states the tradition of state militia and state rights is still strong. Conceivably other southern and southwestern governors might be disposed to resort to this plan.

Comparing the New Jersey and Virginia methods, it might be said that the New Jersey plan does less violence to the right of the workers to strike; but, by the same token, it does not of itself assure continued operations of the utility properties, even after they have been seized by the governor. The state of New Jersey simply would have to depend upon the moral effect of such seizure to break the strike by persuading the workers—or enough of them—to stay on or come back to their jobs. This might be supplemented by a number of state employes and others whom the state might succeed in getting to fill in the gaps to keep the utility wheels turning.

Essentially, this would be strike breaking. If a privately owned utility were involved, such conduct would be called "strikebreaking" by the strikers. But a state government does not have to worry about being called a strike breaker, as much as a business-managed company. This is, perhaps, some advantage to be gained, from the standpoint of public interest, from the New Jersey plan.

The Virginia plan would insure operations by compelling the workers to stay on their jobs under threat of military court-martial, if necessary. But while it is ostensibly more far-reaching than the New Jersey plan, it is very doubtful if our federal courts, as presently constituted, would permit the tenderly nourished rights of labor unions to be thus pushed around by men in state uniform.

Essentially, the difference between the two plans amounts to this: In New Jersey the governor says, in effect, to the would-be utility strikers: "You keep that utility operating, or else the state will." In Virginia the governor says, in effect: "You keep that utility property operating, or else go to the guardhouse."

Perhaps some compromise, especially applicable to utility strikes, can be worked out along the lines of the less drastic New Jersey plan. Senator Ball (R., Minn.), and Senator Ellender (D., La.), have been having some conversations with Senator Murray (D., Mont.), chairman of the Senate Labor Committee, on the idea of gettting up some sort of federal law for special application to public utility strikes. Chances are it would either require compulsory arbitration or a compulsory cooling-off period, which would almost amount to compulsory arbitration.

There are dangers in that type of legislation also for both the utility workers and utility management. Your correspondent cannot even guess at this time when and whether a bill like this will emerge in Congress, and, if so, what the chances are of its passage. If we have many more utility strikes, however, pressure of public opinion is quite likely to build a strong enough fire even under the asbestos seats of the members of both the House and Senate Labor committees, to get some kind of a bill started on its way to enactment.

* * *

Although it does not immediately concern the telephone industry, the Supreme Court last week finally got around to deciding the key test case involving the constitutionality of the so-called "death sentence" of the Holding Company Act. This act, which applies to gas and electric utilities, but not to telephone utilities (except in a few cases where they happen to be hooked up with gas and electric combination), enables the Securities and Exchange Commission to break up holding company groups into little pieces. The case last week involved the North American Co., which is a "pure" holding company in the sense that it is like the "lilies of the field," mentioned in St. Matthew's gospel, which grow without toiling or spinning.

In other words, it is not an operating or "servicing" combination, but simply an investment concern which holds stocks in local operating gas and electric utility companies. The principal argument by the company was to the effect that such investment of itself did not constitute "interstate commerce"

(Please turn to page 38)

THE OPERATOR'S CORNER

BY MAYME WORKMAN TRAFFIC EDITOR

SOMETHING frequently overlooked in central offices of telephone exchanges is the importance of an adequate lighting system. Such a system particularly is essential in offices having manual common battery switchboards.

A poor lighting system causes eyestrain and nervous tension on the part of operators and has an adverse effect on the service rendered to customers. For example, recall signals are not always observed, resulting in slow answers. It is difficult to see line signals if lights are too bright. Insufficient light makes it difficult for operators to observe switchboard markings. The failure to observe these markings frequently results in a customer reaching a wrong number.

Supervisory people should be alert in taking the necessary action to regulate the light, for example, adjusting window shades and turning out lights that are not needed.

In manual common battery offices, it should be recognized that a different degree of light is required at local and toll positions.

The health and comfort of the operating force should be a primary consideration of management and supervisory people. Operators perform their best work when working conditions are favorable.

Fluorescent lights are practical and economical for central offices. Venetian blinds are most effective in regulating light.

In planning a new building, careful consideration should be given to the lighting system in the operating room. Some telephone companies have found the service of a lighting engineer very helpful in determining the amount and type of lighting system desirable to their needs. This service also is helpful in making changes in present lighting systems.

In working in telephone exchanges of all sizes and descriptions, it is apparent that little thought has been given to the importance of the proper lighting of operating rooms.

A general survey of the lighting systems in telephone exchanges throughout the nation with the necessary action to eliminate unsatisfactory conditions would be a boon to switchboard operators and also would result in improved service—two very good reasons why serious consideration should be given to the installation of an adequate lighting system in new buildings and in making a change in a present system.

Questions from Illinois Operators

(1) Why is a prompt answer to a line signal important?

(2) What effect do dim or chipped lamp caps have upon the service?

(3) What is the purpose of a plug count?

(4) How is a plug count taken?

(5) Is a so-called "practice count" helpful in obtaining an accurate peg count?

(Answers to these traffic questions are presented on page 35.)

V V

Michigan Associated Considers Mobile Radio-Telephone

Mobile radio communication service is under serious consideration by the Michigan Associated Telephone Co., Muskegon. The company is considering the introduction of a radio-telephone service, principally for automobiles, which will enable the driver of a car to keep in constant contact with any location equipped with a telephone and which conversely, would enable any automobile equipped with the installation to be contacted at any time by telephone.

The service, now in use by the Michigan Bell Telephone Co. in the Detroit and Port Huron areas, has been offered to the Muskegon company by the Bell company. Michigan Bell already has been assigned a radio frequency for a station which probably will be in Grand Rapids.

Operation of the system would enable the owner of an automobile with a set installed and driving in the Muskegon or Grand Rapids area, to have immediate contact with the Grand Rapids station on lifting the receiver. He would then be connected to the number he desired by a toll circuit between Grand Rapids and Muskegon. The system also would work in reverse enabling the automobile operator to be contacted.

Although the service is not being offered to Muskegon residents until further arrangements are completed, H. H. Randall, commercial manager of the Michigan Associated, stated plans are under way to take advantage of the facilities.

Outstanding advantages of the communications system can readily be seen for taxicab and trucking companies, Mr. Randall said, in their being in constant contact with their home offices. The Bell company has suggested the service for the Grand Trunk ferries in trips between Muskegon and Milwaukee, he said, and favorable reaction to the service was given by Grand Trunk officials.

"Treasury Department—Jingle, Jingle."

V V

Indiana Associated Buys Lafayette, Ind., Property

Edwin M. Blakeslee, president of the Indiana Associated Telephone Corp., announced March 27 that his company had purchased property in Lafayette, Ind., and would build on this lot at the earliest possible date a two-story building with full basement to accommodate some 200 employes and equipment.

TOPS *in*

OPEN WIRE PROTECTION

The TYPE 7 HIGH POTENTIAL LIGHTNING ARRESTER

provides lightning protection and static drain for 5 pairs of open-wire circuits. This arrester is also used for the protection of drop wires and cables terminating in unprotected cable terminals where atmospheric conditions require constant static drain.

Insulation and fanning strip are single-piece molded bakelite. Non-corrosive metal hood, Everdur studs, and galvanized mounting bracket assure satisfactory service and long life. Phosphor bronze spring clips accommodate non-grounding, Tru Gap lightning dischargers.

Engineered, designed and manufactured by Cook Electric Company, the Type 7 Lightning Arrester, like all Cook products, is "tops" in performance, and is your guarantee of dependable service.

COOK ELECTRIC Company

2700 SOUTHPORT AVENUE • CHICAGO 14, ILLINOIS

BUILDING BLOCKS FOR LONG DISTANCE ARMY COMMUNICATION

By J. A. COY
Toll Equipment Engineering
Bell Telephone Laboratories, Inc.

MAGAZINE advertisements show the radio-equipped tanks speeding into action, or GI Joe talking to his command post over the telephone from a foxhole. This is the spectacular side of army communication—full of action and human interest. The equipment is of the portable type, light of weight but rugged in construction, and designed specifically for use in the forward areas. It is quickly installed, easy to operate and maintain, and provides just enough range to link the various army units together.

Such equipment is only a part of the story of army communication, however. As armies move forward, large territories are liberated or conquered, and into these rear areas come the army service groups to set up their shops. Here are the Theater Headquarters, the vast army supply systems with their depots, train, truck and airplane transportation systems, pipe lines, rest camps and hospitals.

The tremendous amount of business carried on by these various agencies makes it necessary to provide extensive telephone and telegraph networks, which approach those of a toll system as we know it here at home. The complexity of the network requires the best obtainable in transmission qualities and operating efficiency.

Compared to Bell System equipment, more emphasis must be given to suitability for installation or expansion on short notice, and to operation and maintenance without a highly trained technical personnel. The planning must necessarily be done in advance, but in such a fashion that the equipment can be manufactured, stored and shipped in bulk to the theaters of operation, and there applied as needed, and applied quickly. It must be a "ready to wear" plant in a range of styles and sizes to fit prospective needs rather than a "custom tailored" plant.

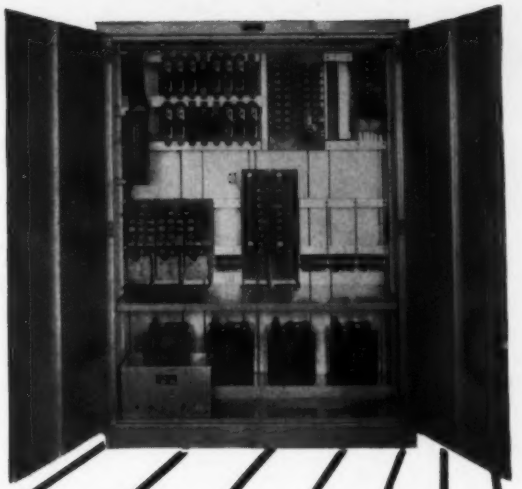
The so-called "packaged equipment" was designed to meet the needs of this comparatively fixed system. The equipment was designed in "packages," each package containing a major equipment unit such as a type-C carrier telephone terminal. A few options could not be avoided, and are taken care of by including extra parts. Each unit is complete in equipment and thoroughly tested before packing. This means that besides the equipment that in the Bell System would be considered part of such a unit as a C-5 carrier terminal, for example, there are included also line filters, composite sets, volume limiters and other auxiliary equipment needed to round out the installation. The packages must be complete to the smallest item required for both installation and operation. No convenient stores are available to the installation forces to draw on for missing parts.

Some changes in design were necessary. In Bell System practice, for example, the balancing networks used with telephone repeaters are designed for the wire or cable circuits with which the repeaters are to be used. Under army conditions the type of circuit cannot be foreseen. It may be a commercial cable captured from the enemy or an army built, open-wire line. Because of this situation, a universal network was designed that can be adjusted to balance any type of line likely to be encountered.

In addition, each package includes spare replacement parts, the necessary

(Please turn to page 24)

Attract New Income
Promote PABX's



There is a fine opportunity for every telephone company to realize additional income in the years ahead, by promoting the installation of Automatic Electric P-A-B-X's. The number of "live" prospects is large—including factories and business houses which are already "sold" on interior telephone service but have not been able to obtain installation during the last few years.

Automatic Electric P-A-B-X's provide the lightning-fast intercommunication these subscribers are looking for. And in addition they provide central-office trunk service on outgoing calls, and incoming service through an attendant (or if desired on some of the systems, this service can be provided without a regular attendant— an ideal arrangement for smaller organizations). Thus, the P-A-B-X is not only an interior telephone system, but a complete, coordinated system of telephone communications.

Your business subscribers will gladly pay the necessary rentals to secure this effective "streamlining" of their communications. Prepare now to attract new income through the promotion of Automatic Electric P-A-B-X's. We shall be glad to help you.

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
Makers of Telephone, Signaling and Communication Apparatus . . Electrical Engineers, Designers and Consultants

Distributors in U. S. and Possessions

AUTOMATIC ELECTRIC SALES CORPORATION, 1033 W. Van Buren St., Chicago 7, U. S. A.
Export Distributors: INTERNATIONAL AUTOMATIC ELECTRIC CORPORATION

With Strowger Automatic . . .

YOU'LL BE READY

FOR NATIONWIDE TOLL DIALING

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems

Makers of Telephone, Signaling and Communication Apparatus . . . Electrical Engineers, Designers and Consultants

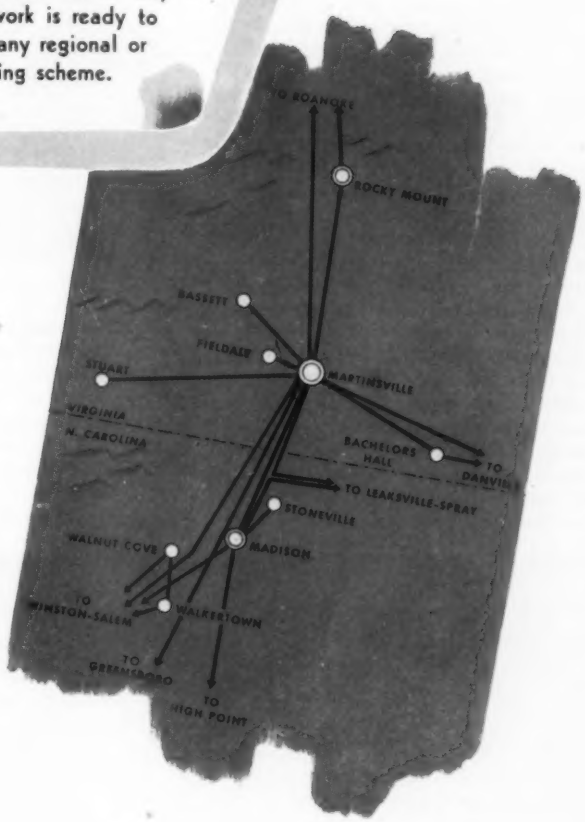
Distributors in U. S. and Possessions

AUTOMATIC ELECTRIC SALES CORPORATION, 1033 W. Van Buren St., Chicago 7, U. S. A.

Export Distributors: INTERNATIONAL AUTOMATIC ELECTRIC CORPORATION

FOR EXAMPLE:

In the Strowger Automatic network of the Lee Telephone Company, Martinsville, Virginia, any toll operator can dial direct to any subscriber, in any exchange. This network is ready to work smoothly into any regional or nationwide toll-dialing scheme.



Telephone companies having Strowger Automatic equipment can embrace any proposed toll dialing plan, confident that their Strowger equipment will handle—or can readily be adapted to handle—any requirements presented by such plans.

Modern Strowger switchboards for small exchanges have "built-in" facilities to provide visual "on hook" and "off hook" supervisory signals, and flashing busy signals for the toll operator in the originating toll center, as well as supervisory tone signals where audible signals are desired. Older Strowger switchboards of any size can usually be easily and inexpensively modified to provide these facilities.

Also available, when required is that seemingly magical register-sender-translator, the Strowger Automatic "Director". Proved in over twenty years of service, this small, compact assembly of standard Strowger switches and relays permits the use of a simple, universal numbering plan in exchange networks, and provides facilities for automatically translating dial impulses into any number and combination of digits needed to route any call to the desired distant office, regardless of the number of tandem switching points involved.

Automatic Electric's modern toll boards, whether automatic or manual, are ready also for toll dialing—the necessary features being built in as "standard equipment". And on older models not so equipped, arrangements can readily be made for the new requirements.

The many Strowger Automatic toll networks already in service testify to the success of toll dialing when Strowger equipment is employed. Automatic Electric engineers will be happy to extend to you the benefit of their many years of experience with toll dialing.

wire for connecting to associated units, and instructions for installation, operation, and maintenance. The essential maintenance tools are made into office packages, while testing equipment is put in convenient packages, each one made complete for a specific class of tests.

Packaging of equipment for convenient manufacture and installation is not, of course, new to the Bell System or to this war. During World War I, equipment for several central offices was packaged and sent to France. It included universal toll switchboard sections, toll and repeater sections, testboard and telephone repeaters. There were stocked also for ready delivery, similar equipments for use in military training camps. Since for World War I our expeditionary forces were confined to Europe, no moisture proofing of component apparatus was necessary so long as the initial shipment was made in packages that were waterproofed.

PBX's and community dial offices have been packaged for some time, as also have been two-wire telephone repeaters and type-H carrier equipment for railroad and telephone company use. Complete central offices have been

J. A. COY

boxed for emergency use as already described. In this new package project for the Signal Corps, however, the package idea has been carried much further as regards both the range of equipment and the flexibility with which it can be combined to meet field requirements.

The use of this packaged equipment in connection with the rehabilitation of the French toll cable between Cherbourg and Paris was one of the early proofs of its suitability. On their hurried retreat through France, the Germans managed to demolish beyond repair quite a number of French repeater stations. The Signal Corps, however, moved in with the packaged voice-frequency repeaters and built new repeater stations in unbelievably short time.

Sometimes the new equipment would be installed in a still standing corner of the damaged repeater building, where the floor and partially remaining walls would afford some protection. The roof might be only a piece of canvas "borrowed" from a truck or trailer. The cracks in the walls would be neatly covered by tacking up blueprints of schematics and wiring diagrams furnished with the package. Other installations were started from the ground up, so to speak, with the installations mounted on 4x4's laid down in the mud of a vacant lot or a town market place. Afterwards, the army engineers would move in and erect a suitable building around the working equipment. Some of the French repeater stations were taken

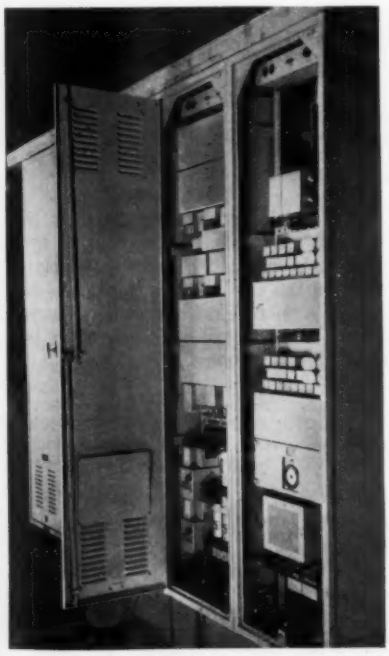
Equipment in use in Australia. The two higher cabinets on the right make up one type-C carrier telephone terminal. The small cabinet contains four voice-frequency ringers and has two transmission test sets on top.

over in good condition and made part of the army network, with the new packaged equipment and the old French equipment working in tandem on the same long distance circuits.

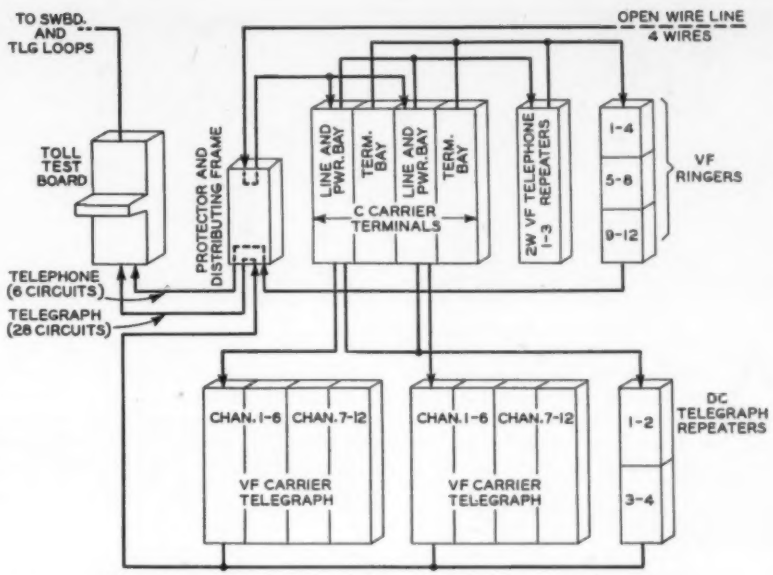
Although the units are the same as their Bell System equivalents in circuit and major operating characteristics, a number of modifications were required to fit army requirements. Each unit is mounted in a steel cabinet with doors back and front. No unit is more than seven feet high, nor weighs more than about 600 lbs. net.

To permit the equipment to be set in rows of uniform height, and to simplify shipping and storage, three sizes of units are employed, seven feet, 3½ ft. and 2⅓ ft., and thus two of the middle-sized units or three of the smaller ones when stacked on top of one another will occupy the full seven-foot height of the largest unit. Where more than one unit is needed to supply a complete package such as a C-5 carrier terminal, the boxed units are marked to indicate the other boxes to be associated with them.

Packaged units arranged and assembled in this manner include type-C and type-H carrier-telephone terminals, voice-frequency carrier-telegraph terminals, two-wire and four-wire telephone repeaters, voice frequency ringers, DC telegraph repeaters, transmission testing equipment, testboards, and line fault location equipment, distributing frames, and miscellaneous auxiliary units. The various units that might be required at a terminal for an open-wire line of four wires are shown in the block diagram on this page.



Type-C carrier telephone repeaters installed and ready for service. The two open cabinets make up one repeater.



Apparatus provided for a terminal of a packaged type-C carrier system.

Instruction books were prepared in unit form so that the information applying to the equipment in any one package can be packed in that package. An additional instruction book covers the engineering of systems. The cabinets at any one location are set up side by side on two 4x4's—one under the front and one under the back of the cabinets. These provide a trough under the base in which wiring is run.

Since the apparatus may be used by the Army anywhere from the Equator to the Arctic Circle, all apparatus must be able to withstand high humidity and a wide range of temperature. Apparatus such as a filter is hermetically sealed in its case. Special compounds are employed for coils and condensers that will not crack at low temperatures, and moisture-resistant wiring and finishes are used throughout. In addition, the equipment must be rugged in design to protect the units from the rough handling it receives during shipment, and its crating, or export packing, must be sturdy and waterproof to protect the units from the elements when it is piled up on the muddy open-air depots of a recently won beachhead.

All of the equipment is designed for operation from 115-volt AC supply, which may be either the commercial supply, if available, or army portable gas-engine generators.

It is recognized that packaging of equipment for bulk manufacture and supply is not effected without some penalty in fitness to specific jobs. A universal package cannot be expected to exactly fit each set of field conditions. Under army conditions, however, the losses in these respects are negligible compared with the advantage of having the equipment available quickly. There likewise, may be conditions in the Bell System where this quick availability will be of great value in giving emergency service, and where the ease of installing and removing packaged equipments will be important in giving short term service.

[EDITOR'S NOTE: *The foregoing was reprinted from March, 1946 issue of Bell Laboratories Record.*]

V V

Central Telephone Co. Names District Plant Superintendent

Verne R. Youll, manager of the Slayton, Balaton, Currie, Iona and Lake Wilson, Minn., exchanges of the Central Telephone Co., became district plant superintendent of the company's properties, it was announced recently by W. H. Schrupp, district manager. The district includes 22 telephone exchanges in Minnesota and four in South Dakota.

Mr. Youll will be in charge of all construction and maintenance of pole lines, cables, central office equipment, etc., Mr. Schrupp stated.

The new plant superintendent joined the Central Telephone Co. at Woonsocket, S. D., in 1925. In 1930 he was transferred to Sac City, Iowa, where his work consisted of cable, plant and central office equipment supervision. He remained there for nine years, being tranferred to Slayton in 1939.

Kenneth Rasmus, manager of the Farmington, Lakeville and Rosemount plants, took over Mr. Youll's former duties.

THE PLANT MAN'S NOTE BOOK

BY
RAY BLAIN
TECHNICAL
EDITOR

A GERMAN combination handset telephone we inspected recently had a plug switch in the connecting block which could be used to open the line while working on the instrument. This appears to be a worthwhile idea and certainly is more convenient than removing a wire from a binding post.

* * *

A new type of rubberlike strip floor covering costing less than six cents per square foot now is available which should prove most desirable for use in telephone equipment rooms. This new product provides a sturdy corrugated cushion to quiet footsteps and makes cleaning easy. This material hugs the floor's surface without cementing and will not curl at the edges. Furnished in 36-in. widths, 25 yards to the roll.

* * *

We are pleased to note that at last an illuminated switch plate has been designed for use on a home lighting system. This small glow lamp is sealed in and operates automatically—always ON when the room light is off; always OFF when the room light is on. Costs less than two cents a year to operate and will certainly prove valuable in the prevention of accidents and in the elimination of wall smudges from groping hands in the dark.

* * *

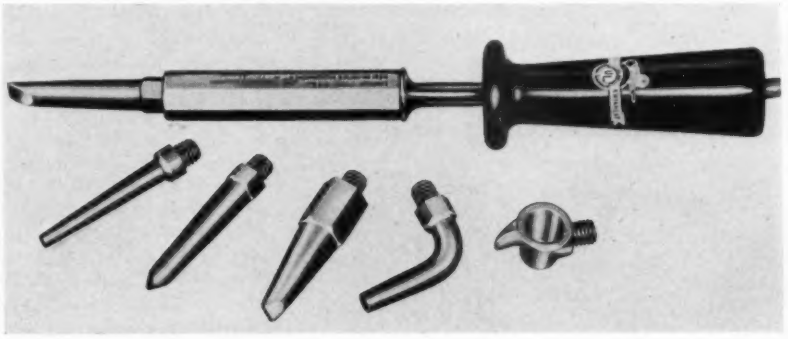
National advertising which appeared recently in several leading magazines states as follows:

"New wonders of speech and writing devices by men who plan beyond tomorrow. A personal radio-telephone to connect you with almost anyone as you walk or drive. A dictating machine to type your letters as you talk into it. Coin-drop, change-making facsimile machines on street corners to 'accept' your handwritten telegram, send it as is. A telephone recorder attachment to take your messages when you're out. All these by men who plan beyond tomorrow!"

In a way, this is amusing for the Peatrophone, which will not only record messages over a telephone, but also deliver a recorded message to calling parties, when required, has been available for years. There is no doubt in the minds of those who plan beyond tomorrow that these and other similar devices will be used extensively to save time and eliminate worry for the busy executive.

* * *

Of interest to telephone men is the announcement of the development of a long-sought-after achievement — an electric soldering iron with a built-in thermostatic heat control. This thermostat maintains constant temperatures at all times and prevents overheating. Also, it increases the life expectancy because it eliminates the excessively high temperatures of the conventional iron when in idle condition which is the major contributing factor in soldering iron deterioration. Tips, too, it is claimed, last longer because they never are overheated and need less retinning. This new iron also heats within 90 seconds by a powerful 225 watt quick-heating element.



This new iron is well balanced, has a hard-chrome plated octagonal shell, a cool plastic handle, length with tip, 13 ins., and weighs only 14 ozs.

* * *

"Talking Shop" in a recent issue of *Esquire* mentioned the following telephone appliances, supposed to be a boon to mankind:

(1) A hush-hush device made of plastic which fits over the mouthpiece of a regular handset to make your conversation private. It is claimed that a third party cannot overhear your side of a conversation even though he may only be a few feet away.

(2) A metal arm which connects to the center of the handset to hold it in position while talking so that the user may have both hands free to make signs.

(3) A memo pad with a pencil attached, which, when removed, lights up the pad for use in making notes when the telephone rings at night. This avoids disturbing the wife by turning on the room lights. It is not explained why the ringing of the telephone does not disturb friend wife.

We still maintain that if these gadgets were necessary, the old line telephone manufacturers would provide them as a part of their instruments.

We are advised by John Jaap, of the Cook Electric Co., Chicago, Ill., that there is a decided change now taking place in the size of cable terminals being used. Before the war, usage figures as indicated by the sales record of the Cook company were as follows:

6-pair	1 per cent
11-pair	38 per cent
16-pair	51 per cent
26-pair	10 per cent

For the period October, 1945, to February 15, 1946, the figures changed as follows:

6-pair	4 per cent
11-pair	65 per cent
16-pair	24 per cent
26-pair	7 per cent

The above figures are interesting and indicate that telephone companies are

cutting the 11-pair terminals into existing cable plants for multiples since they cannot buy either poles or cable.

* * *

Someone has said: "*A big shot is a little shot who has kept right on shooting.*"

* * *

A letter from Capt. Don C. Benjamin, Signal Corps, now stationed in Osaka, Japan, informs us that he receives and enjoys his copy of TELEPHONY. After he has finished with it, he passes it along to the men in his company.

* * *

We often wonder why the letters and numbers on telephone dials are not made of luminescent material so they can be seen in the dark. This would certainly prove a convenience and undoubtedly would eliminate dialing many wrong numbers. New compounds and production methods have greatly increased the utility of luminescent materials. Problems of discoloration, peeling and disintegration all have been overcome successfully.

PLANT MAN'S QUIZ

Q. Please advise what is meant by preventive maintenance as applied to the telephone exchange.

A. Preventive maintenance is generally referred to as a systematic series of operations performed periodically on telephone equipment in order to maintain full efficiency in performance, reduce service interruptions, and eliminate major failures. To fully understand preventive maintenance, it is necessary to draw a line between trouble clearing and repair. The principal function of preventive maintenance is to prevent equipment failures and subsequent need for repair, while trouble shooting is actually locating and correcting existing defects.

The importance of preventive maintenance of telephone equipment cannot be over-emphasized.

* * *

Q. Please explain the term low frequency induction on telephone lines?

A. This term is usually applied to induction at the fundamental frequency of the power circuit which is commonly 25, 50 or 60 cycles.

* * *

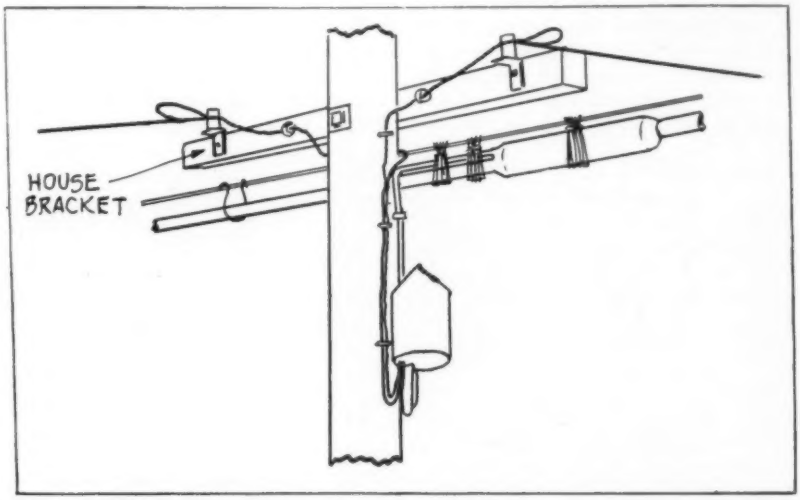
Q. What is a sound powered telephone?

A. In this type of telephone, when the sound waves strike a diaphragm they cause it to move backward and forward in accordance with the sound wave variation. The diaphragm has a small iron armature attached which moves with it.

A permanent magnet and coil are so placed that the armature moves in a strong magnetic field and changes the flux linking the coil. This causes a voltage to be induced in the coil. This voltage will vary with the motion of the diaphragm and will be an electrical replica of the sound waves. The quality of speech produced by this type of transmitter usually is excellent, but its output as compared to a carbon granule transmitter is rather weak.

* * *

Q. How should drop wires be attached to a pole when a guard arm is used?



A. One approved method is indicated in the above sketch.

* * *

Q. What rule should be used in locating cable terminals along an aerial cable route?

A. The frequency of cable terminals should be determined by the number and location of telephones to be served. Also, consideration should be given to the relative economy of installing terminals as compared with drop wire paralleling the cable for short distances. This comparison of cost may indicate that a terminal should be placed on each pole or every second, third or fourth pole, depending upon the telephone density.

* * *

Q. Is it possible to use the spinner method to suspend very small lead covered cables?

A. We are advised that an 11-pair, 28-gauge cable was attached to a messenger strand three years ago and now is apparently in perfect condition. This would seem to indicate that even the smaller sizes of cable may be successfully used by this method.

* * *

Q. What factors should be considered in deciding whether aerial cable or aerial wire should be used to provide telephone service to a new activity near our exchange?

A. This is a difficult question to answer without first making an actual survey on the ground and fully evaluating all local conditions. The use of aerial cable may be limited by transmission features.

Further, it may not prove desirable to use open wire due to the number of circuits involved, or heavy tree growth in the particular area involved and the cost and ease of maintenance should receive proper consideration.

* * *

Q. What advantage, if any, can be expected from the use of the steel pin in crossarms?

A. This pin is generally used where extra strength is required and where the standard wood pin is not considered adequate. It is commonly used on phantom brackets, on heavy corners, at terminal or dead end poles and railroad crossings.

COURTS and COMMISSIONS

Village Seeks Free Lines Between Illinois Towns

After hearing long oral arguments on the Cherry Valley, Ill., petition for better telephone connections with Rockford by the addition of two additional free lines, the Illinois Commerce Commission took the matter under advisement on March 27.

The Illinois Bell Telephone Co. has protested the Cherry Valley petition. Its counsel told the commission that the company's policy is not to extend free service and that no requirements for such service are contained in its franchise.

Attorney Frank M. Maynard, representing the village, argued that heavy demands necessitated installation of two additional free lines between Rockford and the Midwest States Telephone Co., Cherry Valley. He denied the company's argument that it was not required by franchise to provide the free service.

Corporation Counsel Charles S. Thomas represented the city and State's Attorney Max A. Weston the county, as intervening petitioners who wish that the Cherry Valley petition be granted. The village also is asking for a five-minute cutoff on telephone conversations originating in Rockford as now practiced on calls from Cherry Valley.

Two existing free lines have furnished telephone service between the two communities for the last 30 years. Customers also have the choice of long distance toll lines.

V V

50 Per Cent Increase for Lucas, Ohio, Company

Author Louis Bromfield cherished new hopes on April 1 that he would continue to have telephone service at his Malabar farm, near Mansfield, Ohio.

This was due to action of the Ohio State Utilities Commission in approving a 50 per cent rate increase for the Lucas (Ohio) Telephone Co., which has 142 subscribers.

Failure to show profits has hindered improvements for years. Equipment is said to be run down and tools are lacking. Linemen of other companies who help out in keeping the service functioning must bring their own tools.

Mr. Bromfield became involved in the complex legal tangle of the telephone company last January when he attempted to keep the system operating so he would have telephone service at Malabar farm. (TELEPHONY, February 9, page 32, and February 16, page 34.)

Nearly a dozen offers to buy the Lucas company have been received by Willard Darling, court-appointed receiver, and Attorney Henry P. Huston, legal counsel representing Mr. Bromfield.

Mr. Huston said most of the offers came from New York, Pennsylvania, and Texas, while others were extended verbally by would-be purchasers.

The attorney, however, said no action to sell the company would be taken until after it has been appraised and the Richland County Common Pleas Court approves the new rate schedule.

After the rates are approved, the court's permission to sell the company must be obtained.

Mr. Huston said the new rates range from a minimum yearly charge of $21 to a maximum of $39 and are distributed through 13 different classifications.

The rate for eight-party residential service in Lucas will be $21 per year under the new rates, compared with the $15 now in effect. Similarly, the rate for 12-party rural residential service will be $27 instead of $18.

The business rate will be $39 per year.

V V

New Jersey Seizes Strike-Bound Utility

The first test of the New Jersey state law which gives the governor power to take over public utilities as a last resort in labor disputes (TELEPHONY, April 6, page 28) came April 5 when the state of New Jersey seized and began immediate operation of the huge Public Service Electric & Gas Co. at the very hour set by six independent unions for a state-wide strike.

The 1,200 workers involved remained at their posts, assuring an uninterrupted flow of gas for heating and cooking to three-fourths of New Jersey's more than 4,000,000 residents.

Gov. Walter E. Edge signed the order authorizing the seizure and operation of the gas works under the nine-day old state utility strike law. He empowered State Labor Commissioner Harry C. Harper to act as administrator "in order that the manufacture of gas may continue and that the public interest, health and welfare shall not be interfered with."

Union leaders, who previously had announced that workers would stay at their jobs if the state took over in the event negotiations over wage increase demands collapsed, told their members to give 100 per cent co-operation to Mr. Harper.

V V

Illinois Commercial Files For Rate Increase Approvals

Permission to increase rates at 181 telephone exchanges throughout Illinois was sought April 2 by the Illinois Commercial Telephone Co., Springfield. (TELEPHONY, March 9, page 27.)

R. F. Stensrud, commercial superintendent, said the company filed a petition with the Illinois Commerce Commission March 29 for the increased rates. The commission has not set a date for hearing on the request.

Rate increases would vary at individual exchanges. They are intended to meet increased costs which Mr. Stensrud said had reduced company income during the past 10 years.

V V

Three File for Commission

Three new candidates for the Republican nomination for Railway Commissioner have filed in Nebraska. These include Charles A. Roos, for a number of years rate expert for the Nebraska commission, and J. E. Good and E. H. Knudson of Omaha.

DEPENDABLE FWDs

. . . able to go wherever utility work has to be done!

FOUR-WHEEL-DRIVE

A "plus" that pays.. in many ways !

Rugged, dependable FWD utility trucks will get the men and equipment through to do the job wherever it has to be done, regardless of weather, road conditions, or even lack of roads! Wherever live-trouble "pops". . . wherever there's a tough job of maintenance or construction work, pole-pulling or pole-setting . . . anywhere, far off the highway over rugged terrain or in deep muck . . . you can rely on FWDs.

These are utility-engineered trucks . . . they give you all the advantages of the true FWD four-wheel-drive principle with center differential . . . power drive and traction on all wheels . . . balanced weight and power distribution . . . working-strain shared by two driving axles instead of one . . . and dependability in performance that makes FWDs the first choice of hundreds of utilities, many of whom operate big FWD fleets. See your FWD dealer or write for information on FWDs now ready to go to work for you.

THE FOUR WHEEL DRIVE AUTO CO.
CLINTONVILLE, WISCONSIN
Canadian Factory: KITCHENER, ONTARIO

FWD

THE ORIGINAL EXCLUSIVE BUILDERS OF FOUR-WHEEL-DRIVE TRUCKS

"More Power on More Wheels"

FCC Orders Filing Of Journal Entries

The Federal Communications Commission on March 27 adopted an order in the matter of the New York Telephone Co. accounting, ordering that the verified proof of journal entries required by the commission order of December 14, 1943, herein shall be filed with the commission by May 1, 1946.

It further ordered that upon completion of the journal entries as required by the order of December 14, 1943, the provisions of the order of January 25, 1944, which require the New York Telephone Co. to retain in its Account 180 the amount of $4,166,510.57 (TELEPHONY, February 2, page 33), shall no longer be effective.

V V

North Carolina Independent Granted Stock Issuance

The North Carolina Utilities Commission March 28 authorized the North State Telephone Co. of High Point to issue cumulative preferred stock in the amount of $500,000.

Proceeds from the sale of the stocks are to be used in expanding the company's plant facilities, according to Rate Expert Edgar Womble.

V V

Nebraska Company Incorporates

The Dixon (Neb.) Telephone Co. has filed articles of incorporation, with a capital stock of $2,500. The incorporators are R. B. Ankeny, F. A. Johnson, Henry L. Balser, Elder C. Smith and Fred Wolter.

V V

Summary of Commission Rulings and Hearings

Federal Communications Commission

March 18: Granted American Telephone & Telegraph Co. and Michigan Bell Telephone Co. authority to supplement existing facilities between Standish and Charlevoix, Mich. Estimated cost, $149,700.

March 18: Granted New England Telephone & Telegraph Co. authority to supplement existing facilities between Boston, Mass., and St. Albans, Vt. Estimated cost, $50,860.

March 18: Granted Southern California Telephone Co. one year's authority to install and operate portable coastal harbor station on 2,566 kilocycles, 50 watts, A2, A3 emission, to communicate with San Pedro.

March 18: Granted American Telephone & Telegraph Co., Long Lines Dept., Dixon, Calif., authority until December 1, 1946, for point-to-point radiotelephone station in fixed public service, using regularly licensed equipment, frequencies, power and emission, to communicate with Tokyo, Japan.

March 25: Granted Illinois Bell Telephone Co., Indiana Bell Telephone Co. and Southwestern Bell Telephone Co. authority to purchase from AT&T and operate cable conductors between Terre Haute, Ind., and St. Louis, Mo. Estimated cost, $123,296.

March 25: Granted Southern California Telephone Co., San Pedro, modification of license of coastal harbor station.

March 27: Granted American Telephone & Telegraph Co., New York Telephone Co. and New England Telephone & Telegraph Co. authority to construct and operate second cable between Albany, N. Y., and Northampton, Mass., and install 34 Type "K" and one single sideband carrier systems between New York, Albany, Boston and other points. Estimated cost, $2,392,000.

March 27: Granted American Telephone & Telegraph Co., Southwestern Bell Telephone Co. and Illinois Bell Telephone Co. authority to construct and operate 19 Type "K", seven single sideband and 24 Type "EB" carrier systems over existing cable conductors between St. Louis, Mo., and Houston, Tex. Estimated cost, $1,492,000.

March 27: Granted New England Telephone & Telegraph Co., Southern New England Telephone Co. and American Telephone & Telegraph Co. authority to construct and operate toll cable between Canaan, Conn., and Pittsfield, Mass. Estimated cost, $486,010.

March 27: Granted New England Telephone & Telegraph Co. authority to construct and operate five Type "K" carrier systems over existing cable conductors between Boston, Mass., and Brunswick, Me. Estimated cost, $272,000.

March 29: Granted American Telephone & Telegraph Co. authority, effective April 1, to supplement existing facilities between Haines City and Winter Haven, Fla.

Kansas Corporation Commission

April 22: Hearing on application of Overbrook (Kan.) Telephone Co. for authority to make certain rate changes.

May 6: Hearing on application of Border Telephone Co. for authority to make certain rate changes at Manter.

New York Public Service Commission

April 9: Hearing on petition of Dennis F. Healy for consent of sale of Williamstown (N.Y.) Telephone Co. to Glenn I. French.

Utah Public Service Commission

May 13: Hearing on intrastate toll rates of Mountain States Telephone & Telegraph Co.

Wisconsin Public Service Commission

April 11: Rehearing on case of Two Rivers vs. Commonwealth Telephone Co. concerning rates.

April 12: Hearing on refusal of Wisconsin Telephone Co. to extend service to Emil Buckau.

V V

W. H. Harrison Discusses Rural Expansion Program

The job of getting more and better telephone service to more farm families is moving ahead with speed, according to W. H. Harrison, vice president of the American Telephone & Telegraph Co., in a recent article in *Rural Electrification*, concerning the Bell System's program for expanding its rural telephone facilities.

Emphasizing that the good results already obtained represent only the beginning of the huge program, Mr. Harrison stated that the Bell System added 75,000 new rural telephones in 1945 and thereby just about equalled the previous peak farm telephone gain for any 12-month period. The expansion program, the article pointed out, will double the number of farm telephones in Bell areas and will require an expenditure of more than $100,000,000.

Based on surveys in over 1,500 rural areas, it is clear, Mr. Harrison stated, that more than 80 per cent of all rural families can get telephone service today without having to pay for pole line construction. This free construction allowance has been increased substantially—it is now generally half a mile per customer—and is being applied on an "area coverage" basis.

This means that where lines are being extended to serve a particular section, any unused portion of the half-mile per customer allowance is credited to other customers in the area who require more. For example, if 10 new customers live within four miles of an existing line, and 10 more live six miles further out in the same area, service can be extended to all 20 customers without a construction charge to any.

For customers who may still need to pay some charge for construction, these charges have generally been reduced.

The article quoted Mr. Harrison as saying that the telephone companies mean business and are seeking and taking every opportunity to extend rural service as widely as possible.

"With the release of engineers from war projects," Mr. Harrison said, "the Bell System has stepped up development of new methods. Among these is the development of carrier equipment to transmit telephone conversations over rural power lines, new methods and materials to permit joint use of long span rural power lines for both telephones and power lines, and the study of radio as a means to serve very remote areas.

"The best guide to over-all success," Mr. Harrison concluded, "is the plain determination of Bell System people to do this job thoroughly and completely. We have made a good beginning, but we know that it is only that —our goal is a million new rural telephones in three to five years and we mean to reach it."

SURPLUS GOVERNMENT-OWNED

CARRIER EQUIPMENT

USED------UNUSED

Consisting of Telephone and Telegraph Repeaters, Terminals, Ringing Equipment and Test Sets Originally costing about

$3,000,000 and other

TELEPHONE and TELEGRAPH EQUIPMENT

Wire and Cable, Switchboards, Telephones, Tools, Test Sets, Cords and Miscellaneous Items Originally costing about

$1,000,000

Listings completely describing the material are now available at any War Assets Administration Regional Office. Ask for "WA Listing No. L-43, April 3, 1946," which contains detailed information about condition, location of items and how to obtain permission to inspect material at U. S. Signal Corps depots on and after April 18, 1946. This listing also contains an offer-to-purchase-form which *must be used* for the submission of all bids.

The equipment and parts are unpackaged (although some cable is on reels) but will be packaged after sale, when necessary, to insure safe shipment. All sales will be for cash unless credit terms have been arranged.

All bids must be delivered not later than 10 A. M., April 26, 1946, to the War Assets Administration, 70 Pine Street, New York 5, N. Y., at which time bids will be publicly opened and read. The right is reserved to reject any or all bids.

VETERANS OF WORLD WAR II: To help you in purchasing surplus property from War Assets Administration, a veterans' unit has been established in each of our Regional Offices.

For Further Information, Wire, Write, Telephone, or Call at Address Above or at Any of the Regional Offices Below.

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Offices located at: Atlanta · Birmingham · Boston · Charlotte · Chicago · Cleveland · Dallas · Denver Detroit · Helena · Houston · Jacksonville · Kansas City, Mo. · Little Rock · Los Angeles · Louisville Minneapolis · Nashville · New Orleans · New York · Oklahoma City · Omaha · Philadelphia Portland, Ore. · Richmond · St. Louis · Salt Lake City · San Antonio · San Francisco · Seattle · Spokane Cincinnati · Fort Worth (Telephone 3-5381)

464

NEW ECONOMY, LIGHT WEIGHT, SERVICE

WHATEVER YOUR LINE!

THIS POWER CABLE was installed in an unfavorable situation. Part of it runs adjacent to high pressure steam lines. Part lies in sump water containing cresylic acid waste. The cable itself is a 300,000 CM power cable used on 4,160 volt Delta, 3 phase, 60 cycle – 300 ampere average service. It is cycled periodically from a no load condition to full load. Replacing a heavy cable sheathed with paper and lead, in July, 1944, the new conductor is insulated with polyethylene, a plastic so light it floats in water. Only 6/64-inch thick, this insulation has remarkable low loss electrical characteristics, an extremely low water vapor transmission coefficient, and exceptional resistance to water and chemicals. It is tough and impact resistant; inherently flexible and extensible; has a wide temperature working range.

Polyethylene insulation should rapidly supplant many older types – yield longer service and bring freedom from many causes of failure. Engineers, designers, and manufacturers will find, too, that the unique properties of this new plastic will bring economy and improved characteristics to an almost limitless line of products. Polyethylene resins can be molded as well as extruded; calendered onto cloth and paper; made into monofilaments, flexible sheets and film.

Write Department 34-P for Booklet V-2, "Polyethylene Resins." Experimental samples of this new plastic are also available upon request.

BAKELITE CORPORATION
Unit of
Union Carbide and Carbon Corporation
UCC
30 E. 42ND ST., NEW YORK 17, N.Y.

POLYETHYLENE

Chazy, N. Y., Company Starts Rural Program

In line with its program that every farm in its locality have telephone service, the Chazy (N. Y.) Telephone Co., under the management of R. E. Slosson, is launching its 1946 program.

Immediately upon removal of wartime restrictions on August 16, 1945, the company placed orders for additional equipment to increase the capacity of its Chazy and West Chazy offices to give service to approximately 150 additional rural families in each of its exchanges.

This equipment has been installed recently and it is now only necessary for the company to secure poles and wire to permit carrying out the extensive construction planned.

The New York Telephone Co. has cooperated by building additional trunk lines to connect the Plattsburg office for better and quicker toll service.

V V

Dial Installation Slated for North Carolina Farmers

Although mid-winter ice storms set back the Concord (N. C.) Telephone Co.'s expansion plans six months, completion of the expansion work west of Landis and China Grove, it was stated, "stands first" on the company's list.

New poles were erected in 1945 from Landis to the Corriher church corner, along the Landis-Mooresville highway, and had ice storms not interfered the farmers indicated that many of them would be using their new telephones by now.

Corriher Grange section farmers reported a few months ago that plans call for the installation of about 100 dial telephones in the section west of Landis, with almost as many more in prospect for farmers west and northwest of China Grove, with an exchange to be erected at Landis.

V V

Radio-Telephone Heralds New Newspaper Era

Radio-telephone service that will permit reporters of the Detroit, Mich., *News*, riding in automobiles on the city's streets, to converse with their city editor will be in operation by late summer.

James B. Kaler, division commercial superintendent for the Michigan Bell Telephone Co., recently announced that equipment is now on order which will permit initial installation of 50 mobile receiving and transmitting sets in vehicles of various customers. One of the first units will be installed in a Detroit *News* car.

To test the equipment, the initial installations will be made in public utility service vehicles such as electric power line trucks, ambulances, taxicabs and food distribution cars. Other users will be added as equipment becomes available.

V V

20-Year Attendance Record

MRS. EDGAR COURTNEY has again been employed by the Farmers & Citizens Telephone Co., Union Star, Mo., to serve as switchboard operator. Mrs. Courtney has served 20 years as operator and has only been away from the office seven months in that time.

V V

Obituary

MRS. E. O. TURNER, wife of E. O. Turner, pioneer Missouri Independent telephone operator, died March 14 after an illness dating back nearly two years. Mrs. Turner was the bookkeeper for Mr. Turner while operating the Crane, Rich Hill and La Plata, Mo., exchanges. Due to Mrs. Turner's illness at La Plata they sold the property.

In the 10 different exchanges in Missouri which Mr. and Mrs. Turner owned and operated they have many friends who will be sorry to hear of Mr. Turner's sad bereavement.

Answers to Traffic Questions on Page 18

(1) A prompt answer is an important item in the customer's appraisal of the service. A prompt answer also is essential in recognizing urgent calls and last, but not least, prompt answers contribute to the good morale in operating forces.

(2) Dim or chipped lamp caps frequently result in an operator's failure to see signals. Needless to say, such lamp caps should be reported promptly.

(3) A plug count is used for checking the balance of "A" boards.

(4) In taking a plug count, the number of plugs in answering jacks are counted by panels. The count is started at five minute intervals and proceeds in the same order.

(5) Practice peg counts are very helpful in establishing the habit of counting and have a definite effect upon the accuracy of the peg count.

OLIVER BOLTS

Included in the complete line of Oliver Pole Line Materials are BOLTS of all types and sizes required for telephone service. A few representative types are illustrated above. For complete details see the Oliver Pole Line Material Catalog.

SPEED POINT... a feature of Oliver Bolts that means faster assembly, fewer damaged bolts.

OLIVER IRON AND STEEL CORPORATION

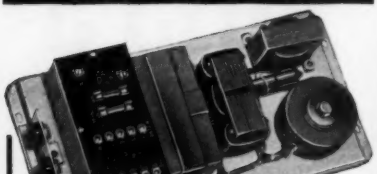
South Tenth and Muriel Streets, Pittsburgh 3, Pa.

ALL the strength and durability inherent in steel are combined---with definite economies---in *Crapo* Galvanized Steel Strand. Heavy, ductile, tightly-bonded zinc coatings, applied by the famous *Crapo* Galvanizing Process, provide lasting protection against corrosion.

Ask the distributor of *Crapo* Galvanized Products near you or write direct for further information!

INDIANA STEEL & WIRE CO.
MUNCIE, INDIANA

UNSURPASSED for Generating Telephone Signaling Tones



LORAIN
(STATIC TYPE)
TONE GENERATOR
7 HIGH TONE LEVELS 6 LOW TONE LEVELS

NO MOVING PARTS
RELAYS
CONTACTS (Vibrating)
NOISE FILTERS
VACUUM TUBES
Operating Maintenance
ADJUSTMENTS

Operates directly from the regular 60-cycle commercial A.C. supply and the High and Low Tones are produced by making use of the harmonics generated when a magnetic material is saturated.

Model "A", is arranged to operate on 105-125 volts 60-cycle commercial A.C. supply.

Sold by Leading Distributors

LORAIN PRODUCTS CORPORATION
LORAIN, OHIO

TRIAL OF POWER CARRIER PROGRESSING SATISFACTORILY

EXPERIMENTAL trial of the first long-span rural pole line to carry both telephone and electric power wires is progressing satisfactorily, the Bell System reported April 1, and indications are that the joint construction method in many instances will prove an economical means of extending telephone and power service to farmers.

The trial is being conducted in the vicinity of Selma, Ala., by the Southern Bell Telephone & Telegraph Co. and the Alabama Power Co. (TELEPHONY, December 8, page 19.) Similar trials will be undertaken shortly near Pipestone, Minn., and Webster, S. D., by the Bell System and Rural Electrification Administration co-operatives.

Joint use of poles for both telephone and power wires is fairly common in cities, where the poles are seldom set more than 150 ft. apart. More than 6,000,000 such poles are being used jointly by the Bell System and power companies.

The high strength steel telephone wire that can withstand ice and wind storms when strung over spans of great length is being used in these experiments. Concurrently construction, transmission and safety problems peculiar to long-span joint construction have been worked out. The field trials are for the purpose of testing these new materials and methods.

In the Selma experiment, the spacings between poles average more than 400 ft. with a few spans more than 500 ft. long. The line is approximately 16 miles in length and carries a typical power circuit and three telephone circuits.

The vicinity of Selma is representative of farming country in which considerable distances separate potential telephone subscribers, creating problems in providing service at reasonable cost. Prior to the installation, a survey of the area confirmed the need for telephone service and provided the basis for the decision to try joint pole use. Circuit and other requirements were developed and the construction undertaken.

In planning the installation, safety was a top consideration. In addition to the customary protective devices at the subscribers' premises, special protectors were installed on each circuit at regular intervals which, in case of accidental contact between the power and telephone lines, will discharge the current to the ground. Equally complete protective measures were adopted dur-

Group of telephone men in front of J. F. SUTTLE'S store in Selma, Ala. This store houses the postoffice and is served by power line carrier telephone equipment. From left to right: C. P. MALONE, Mobile, Ala., district manager Southern Bell Telephone & Telegraph Co.; J. F. SUTTLE, owner of the store; R. A. LUMPKIN, Mattoon, Ill.; C. M. McDOWELL, Selma, Ala., manager of the Selma exchange of Southern Bell; F. M. MALONE, Alabama manager of Southern Bell; C. C. VON HOENE, district manager of Southern Bell, Montgomery, Ala.; MINOR CORMAN and his son MAJOR CORMAN.

MR. CORMAN using the carrier telephone in MR. SUTTLE'S office with MR. LUMPKIN as an interested spectator. Note the old magneto desk telephone and the third telephone (the hang-up set) which supplements the carrier set in the event of a failure of the carrier equipment.

ing the construction period to safeguard the linemen.

Both Bell System and power company engineers participating in the experiment report that telephone lines constructed in this way provide good talking circuits; that only a few changes in the existing pole line are necessary; that the new method will conserve labor and materials and that the safety requirements seem complete.

The engineers acknowledge that the joint use of pole lines will not be suitable in all situations. However, it is only one of many new methods the Bell System contemplates using in its present $100,000,000 rural expansion program for bringing telephone service to a million more farm homes within the next few years.

For example, to reach those living near power lines but not near telephone lines, it is planned to use rural power line carrier systems, which enable telephone calls to "hitch-hike" over the same wires that carry electric power. Subscribers already are receiving telephone service by that method in trial installations on power lines near Selma and Jonesboro, Ark. (TELEPHONY, December 29, 1945, page 25; January 5, page 26.)

A method of extending telephone lines by burying the wires in the ground, eliminating poles, has been developed for use where the terrain is suitable. Plows have been constructed for this purpose and the Bell Telephone Laboratories, Inc., is experimenting with an improved rubber-covered wire for use underground.

Still another means of bringing telephone service to very remote areas is the radio-telephone. Experiments have progressed to the point where a trial installation soon will be undertaken in the ranch country around Cheyenne Wells, Colo.

Suitable for remote mounting from the control panel
Self-contained unit for the smaller d-c requirements
Simplest, lowest-cost Diverter-Pole design
Gasoline-motor driven Diverter-Pole where complete freedom is desired from an electrical power supply
Semi-portable design for parallel operation

What the USER needs determines HOW EP *designs it*

There is only one major rule that governs the design and manufacture of an E.P. Diverter-Pole Battery Charger. It is: "What are the specific needs of the User?" The Electric Products Company follows rigidly this basic concept . . . and E.P. users confirm it.

Years ago, E.P. learned that ordinary standard commercial machines and design practice could not meet satisfactorily the widely varying direct-current requirements of Telephone Exchanges. The result has been that since 1923, Diverter-Pole Battery Chargers have been proving continuously that they provide MORE value for LESS overall cost.

For the most reliable, maintenance-free and efficient source of direct current, specify E.P. Diverter-Pole Battery Chargers.

Ask for Bulletin 96-A

X-18

THE ELECTRIC PRODUCTS COMPANY
1727 CLARKSTONE ROAD CLEVELAND 12, OHIO

"Endurance"
TELEPHONE WIRES
RUBBER—PLASTIC

DROP—BRIDLE—INTERIOR
DUCT—FIXTURE—TREE
GROUND

Our personnel is experienced in working to exacting specifications, utilizing advanced techniques and modern equipment.

For prices and delivery direct inquiries on your requirements to

GENERAL INSULATED
WIRE WORKS, INC.
PROVIDENCE, RHODE ISLAND

SINCE 1889
NATCO
CLAY CONDUIT

The proved and standard Protection for Underground Telephone Cables.

Cheapest in the long run. Highest quality and a full line of shapes.

National Fireproofing Corp.
202 E. Ohio Street, N. S.
PITTSBURGH, PA.

In the Nation's Capital

(Concluded from page 17)

within the meaning of the federal constitution, and therefore Congress could not validly legislate on the subject.

A decade ago this correspondent would have recommended to any would-be gambler that such a line of argument would be successful in the highest court. But so far and so fast has the Supreme Court been moving to the left, turning over landmark precedents of previously established concepts of constitutional law that today the 6-to-0 unanimous verdict of the court in favor of the SEC caused not a ripple of surprise even in Wall Street. In fact, the court had prepared the way with so many other precedents during the decade between the enactment of the holding company law and its final test that it would be hard to imagine the decision going any other way.

And so, it is not surprising that your correspondent, after going all through the opinion of the court by Justice Murphy, could find no particular legalistic flaw under the present state of established case law. He couldn't even find a hairpin in Justice Murphy's opus. The principal points which the court did decide in this North American case are as follows:

(1) Proof of the exercise of interstate control over subsidiaries is not necessary to sustain federal jurisdiction, but merely "the power to dominate them when and if necessary."

(2) "Although ownership of securities, considered separately and abstractly, is not commerce," Congress was warranted in finding that such ownership, under certain practical circumstances dominating public interest in utility operations, had resulted in evils and abuses affecting interstate commerce and in legislating regulations to prevent the same, even though it concurrently affected intrastate operations.

(3) The contention that the "death sentence" was unnecessary (in view of regulation provided by the rest of the act) was rejected on the ground that Congress had properly weighed and determined the scope of its statutory remedies—legislating the "death sentence" to correct existing holding company structures, and the more continuous regulatory sections for future control of surviving organizations.

(4) The contention that the "death sentence" was harsh or confiscatory, especially on a group not proved guilty of the abuses to be prevented, was rejected by negative holding of the court to the effect that the company was not complaining or proving a specific unfair plan or reorganization, and that mere opportunity to do wrong, rather than actual wrongdoing, justified preventive regulation.

There are several other more detailed test cases on the Holding Company Act still before the court. But they involve interpretation and administration. The main argument about the status of the act as a whole has been settled. Its importance to the telephone industry at this time is chiefly academic. It is theoretically conceivable that Congress might some day want to pass such a law against the telephone company holding system. If so, the law would be constitutional under this decision. However, the communications policy of the federal government has been to recognize certain technical advantages of system operation—especially with respect to the nation's long distance telephone service.

V V

Suttle Discontinues Repair And Rebuilding Services

The Suttle Equipment Co., Lawrenceville, Ill., has announced that effective April 15 it is discontinuing its telephone repair and rebuilding services and will no longer be able to accept orders for rebuilding and repairing telephone apparatus or parts of any kind.

In an announcement recently forwarded to customers the company stated:

"There are a great many factors involved in forcing us to make this decision on our rebuilding shops. We hope you will understand them and realize that we are not letting you down. These difficulties have been with us all during the war, but we have carried on, many times at a loss, during this period because we realized the vital need of making use of all equipment possible as a means of winning the war. From now on, however, the manufacturers will be able to supply modern, new equipment which will prove more economical for our telephone friends. In addition you now have more help available to make repairs in your own shops."

The Suttle company stated that lack of available parts for obsolete equipment, the fact that cost of new equipment is lower than rebuilding costs; the modern-day handset requires less repair work, and the knowledge that higher rebuilding prices defeat the savings idea, resulted in the conclusion: *"That it is time for us to retire from this type of service and concentrate our energies on serving our telephone friends in ways which will meet with the trends of the times and help them to prosperity in the coming years."*

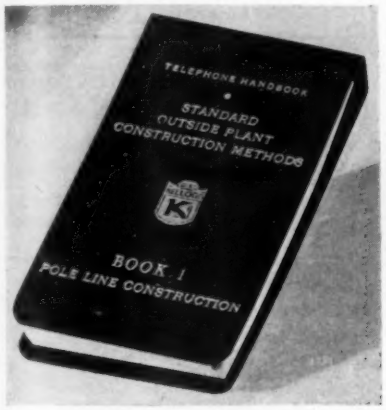
The Suttle company will continue to

supply new telephones, switchboards and supplies. Printing and stationery services also will be provided as they have been in the past.

V V

New Telephone Handbook Announced By Kellogg

First of a series of four, a new telephone handbook, *"Standard Outside Plant Construction Methods,"* is soon to be released for distribution by the Kellogg Switchboard & Supply Co., Chicago, Ill. Timely and comprehensive, it is said this first volume contains 344 fact-packed pages, 195 informative methods illustrations, numerous illustrations of materials, and 85 charts and tables, all devoted to pole line construction.



Soon to be released by the Kellogg Switchboard & Supply Co., Chicago, Ill., is the first of a series of four telephone handbooks devoted to *"Standard Outside Plant Construction Methods."* The first volume contains 344 pages on the subject of pole line construction.

Incorporated in the four illustrated handbooks in the series, the company states, will be information invaluable to all telephone men, covering every phase of outside and inside plant construction methods. Each volume measures only 4½ ins. wide by seven ins. deep, making it convenient to carry for ready reference on the job. Each volume is bound in a tough, long-wearing material.

V V

Hemingray Issues New Insulator Catalog

The Hemingray Division of the Owens-Illinois Glass Co., Muncie, Ind., recently has issued an attractive 24-page catalog which presents an interesting historical outline of communication insulators.

Sections of the new catalog present in photographs and blueprint reproductions factual information on telephone line insulators, telephone rural

EXCEL CABLE HANGER

The latest development in cable hangers.

- *Provides larger bearing area*
- *No ring cuts, cannot injure lead sheath*
- *Eliminates saddle rings and grade clamps*
- *Easily installed without tools*
- *Reduces maintenance costs*
- *EXCEL Cable Hangers are made in standard sizes or to your specifications.*

WRITE DIRECT OR TO YOUR DISTRIBUTOR FOR SAMPLE AND PRICES.

EXCEL INCORPORATED
2304 NO. NARRAGANSETT AVE., CHICAGO 39, ILL.

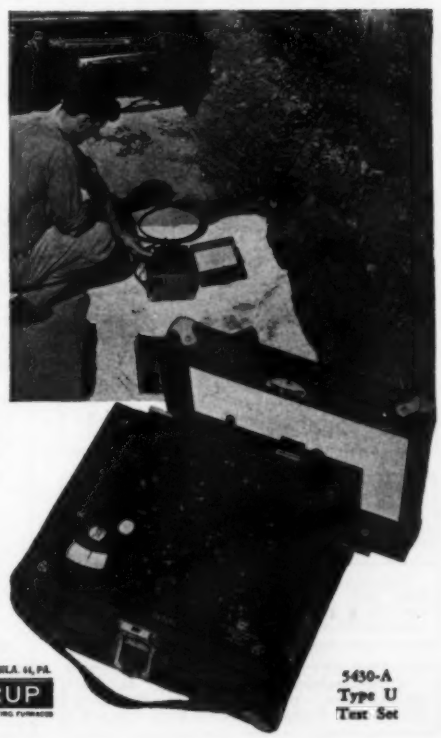
CLEARS TROUBLE IN A HURRY
Averages $6.00 Saving Per Fault

This easy-to-use Wheatstone Bridge puts its finger on faults — locates grounds, crosses or opens — enables trouble-shooters to clear lines or cables in minimum time.

A recent survey among users indicates that this Test Set saves from 1 to 8 hours in locating faults, as compared with other methods. In terms of man-hour cost of trouble-shooting, it saves an average of $6.00 per fault. From this average figure, it appears that after locating 21 faults the instrument has saved enough to pay for itself. After its 21st location, this test set is actually earning money.

These savings, as well as the benefits of subscriber good-will are yours with the purchase of one of these Test Sets. Price is $125.00. If more information is required, write for Catalog E-53-441(1).

A FREE HANDBOOK explaining methods of using this Bridge for locating grounds, crosses, opens and other faults, will be sent on request. Write for Note Book E-53-441 "Notes on Fault Location in Cables."



5430-A Type U Test Set

LEEDS & NORTHRUP COMPANY, 4901 STENTON AVE., PHILA. 44, PA.
LEEDS & NORTHRUP

Jrl. Ad. E-53-441(4a)

Stromberg Carlson's new Pacific Coast Headquarters. (Insert) JOSEPH P. GALLIGAN, manager Pacific Coast telephone sales.

system insulators, telegraph insulators, and explain how research, quality control and inspection have aided in developing the insulator to the uniform, high quality product that it is today.

Copies of the catalog may be obtained by writing direct to the Hemingray Division, Owens-Illinois Glass Co., Muncie, Ind.

V V

Stromberg-Carlson Moves Pacific Headquarters

In an effort to provide facilities for its expanding operations, the Stromberg-Carlson Co. has moved its Pacific Coast headquarters from 1355 Market St. to a larger building at 325 Ninth St., San Francisco 3, Calif.

The building was occupied April 1, according to T. C. Thompson, Stromberg-Carlson telephone sales manager. The Pacific Coast branch will continue under the direct supervision of Joseph P. Galligan.

>> *Nature imitates herself. A grain thrown into good ground brings forth fruit; a principle thrown into a good mind brings forth fruit. Everything is created and conducted by the same master—the root, the branch, the fruits — the principles, the consequences.* — Pascal.

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